Technical Documentation to Support Development of Minimum Flows and Levels for the Caloosahatchee River and Estuary

Appendix E

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CERP Projects in the C-43 Basin

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South Florida Water Management District

January 2003

CERP Projects in the C-43 Basin

Caloosahatchee River (C-43) Basin Aquifer Storage and Recovery -Pilot Project (2008)

Project Description: Aquifer Storage and Recovery wells are proposed in order to maximize the benefits associated with the Caloosahatchee River Storage Reservoir. A pilot project for these wells is necessary to identify the most suitable sites for the aquifer storage and recovery wells in the vicinity of the reservoir and to determine the optimum configuration of those wells. The pilot project will provide information regarding the characteristics of the aquifer system within the Caloosahatchee River Basin as well as determine the hydrogeological and geotechnical characteristics of the upper Floridan Aquifer. The pilot project will also determine the specific water quality characteristics of waters to be injected, the specific water quality characteristics and the amount of water recovered from the aquifer, and the water quality characteristics of water within the receiving aquifer.

Caloosahatchee Back-pumping with Stormwater (2014) Treatment Project

Project Description: This project includes pump stations and a stormwater treatment area with a total capacity of approximately 20,000 acre-feet located in the C-43 Basin in Hendry and Glades Counties. The initial design of the stormwater treatment area assumed 5,000 acres with the water level fluctuating up to 4 feet above grade. The final size, depth and configuration of this facility will be determined through more detailed planning and design. The purpose of this feature is to capture excess C-43 Basin runoff, which will be used to augment regional system water supply. Backpumping will only occur after estuary and agricultural/urban demands have been met in the basin and when water levels in the C-43 storage reservoir exceed 6.5 feet above grade. Further, Lake Okeechobee water levels must be within a a specified range to accept this water so as to not impact ecological resources. When these conditions are met, a series of pump stations will back-pump excess water from the reservoir and the C-43 Basin to Lake Okeechobee after treatment through a stormwater treatment area. The stormwater treatment area will be

designed to meet Lake Okeechobee phosphorus and other pollutant loading reduction targets consistent with the Surface Water Improvement and Management Plan for the Lake and future appropriate pollution load reduction targets which may be developed for the Lake and the watershed in which the facility is to be located.

C-43 Basin Storage Reservoir Project, Part 1 (2011)

Project Description: This project is the first part of the C-43 Basin Storage Reservoir and ASR component. The project includes an above ground reservoir with a total storage capacity of approximately 160,000 acre-feet located in the C-43 Basin in Hendry, Glades, or Lee Counties. The initial design of the reservoir assumed 20,000 acres with water levels fluctuating up to 8 feet above grade. The final size, depth and configuration of this facility will be determined through more detailed planning and design. The purpose of this project is to capture C-43 Basin runoff and releases from Lake Okeechobee. The reservoir will be designed for water supply benefits, some flood attenuation, to provide environmental water supply deliveries to the Caloosahatchee Estuary, and water quality benefits to reduce salinity and nutrient impacts of runoff to the estuary. It is assumed that, depending upon the location of the reservoir and pollutant loading conditions in the watershed, the reservoir could be designed to achieve significant water quality improvements, consistent with appropriate pollution load reduction targets. Excess runoff from the C-43 Basin and Lake Okeechobee flood control discharges will be pumped into the proposed reservoir. Lake Okeechobee will meet any estuarine demands, not met by basin runoff as long as the lake stage is above a pre-determined level. Lake water will also be used to meet the remaining basin demands subject to supply-side management. The C-43 reservoir will also be operated in conjunction with the Caloosahatchee Back-pumping project, which includes a stormwater treatment area for water quality treatment. If the level of water in the reservoir exceeds 6.5 feet and Lake Okeechobee is below a pre-determined level, then water is released and sent to the back-pumping facility.

C-43 Basin Aquifer Storage and Recovery Project, (2018) Part 2

Project Description: This project is the second part of the C-43 Basin Storage Reservoir and ASR component. This project includes aquifer storage and recovery wells with a total capacity of approximately 220 million gallons per day and associated pre- and post-water quality treatment located in the C-43 Basin in Hendry, Glades, or Lee Counties. The initial design of the wells assumed 44 wells, each with the capacity of 5 million gallons per day with chlorination for pre-treatment and aeration for post-treatment. The level and extent of treatment and number of the aquifer storage and recovery wells may be modified based on findings from a proposed aquifer storage and recovery pilot project (U.S. Environmental Protection Agency, 1999). The purpose of this project is to capture C-43 Basin runoff and releases from Lake Okeechobee. The wells will be designed for water supply benefits, some flood attenuation, water quality benefits to reduce salinity and nutrient impacts of runoff to the estuary, and to provide environmental water supply deliveries to the Caloosahatchee Estuary. Excess runoff from the C-43 Basin and Lake Okeechobee flood control discharges will be pumped into the C-43 Basin Reservoir. Water from the reservoir will be injected into the aquifer storage and recovery wellfield for long-term (multi-season) storage. Any estuarine demands, not met by basin runoff and the aquifer storage and recovery wells, will be met by Lake Okeechobee as long as the lake stage is above a pre-determined level. Lake water is also used to meet the remaining basin demands subject to supply-side management.